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JAPANESE [JP, 3224949, B]

1. JP, 3224949, B

CLAIMS DETAILED DESCRIPTION TECHNICAL FIELD PRIOR ART EFFECT
OF THE INVENTION TECHNICAL PROBLEM MEANS OPERATION EXAMPLE
DESCRIPTION OF DRAWINGS DRAWINGS

[Translation done.]

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CLAIMS

(57) [Claim(s)]

[Claim 1] While preparing a tongue-shaped piece which made a portion inserted in the non-periphery section of a tabular terminal drawn from a contact into a terminal mounting hole of the shape of a slit established by attachment member made of synthetic resin project to reverse sense with the path of insertion A window hole which made a part where an end is inserted in said tongue-shaped piece in the non-periphery section of said terminal mounting hole ****, and made a skin of this attachment member expose the other end to said attachment member, Terminal caulking structure of switching equipment characterized by making said tongue-shaped piece in said terminal mounting hole press fit into said engagement dead air space to punch which prepared said window hole and engagement dead air space which counters through said terminal mounting hole, and was inserted in said window hole.

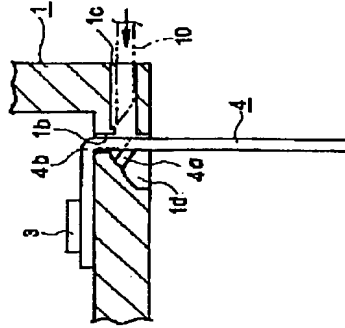
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HELP

Drawing selection [drawing 1]

[図 1]



1: ハウジング (取付部材)

1b: 端子取付孔

1c: 窓穴

1d: 係合部

3: 端子取付部

4: 端子

4a: 窓穴

10: ボンチ

[Translation done.]

5

JAPANESE

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] In case this invention carries out caulking immobilization of the tabular terminal drawn from a contact at housing, the circuit board, etc., it is used, and it relates to the suitable terminal caulking structure of switching equipment.

[0002]

[Description of the Prior Art] Explanatory drawing showing the terminal caulking structure of the former [drawing 8] and drawing 9 are the cross sections which looked at drawing 8 from the side of a terminal.

[0003] the time of attaching the tabular terminal 20 drawn from the contact 21 in the attachment members 25, such as housing, in conventional switching equipment, as shown in these drawings -- first -- the abbreviation for this terminal 20 -- rather than the right-angled bending section 22, the portion by the side of a tip is inserted in the terminal mounting hole 26 of the shape of a slit established by the attachment member 25, and the contact 21 over this attachment member 25 is positioned. Next, when a tip configuration made the punch 30 of an abbreviation V typeface eat into the level difference section 23 of the pair beforehand prepared in the part which projects a little from the terminal mounting hole 26 in the side edge section of a terminal 20, as the chain line showed to drawing 8, this level difference section 23 that put in the cut was pushed open outside, it bound tight to the terminal protrusion side 27 of the attachment member 25, and the terminal 20 and the contact 21 were fixed to the attachment member 25 in this way.

[0004]

[Problem(s) to be Solved by the Invention] But, since the portion which projects from the terminal mounting hole 26 of the attachment member 25 among terminals 20 inclined in the direction of arrow head B of drawing 9 by the stress and the impact at the time of a caulking or tends to have turned at the conventional terminal caulking structure mentioned above, deviation arises in a terminal location, or it has the danger that will induce the inclination of a contact 21 and a contact location will shift, and high-reliability could not acquire it easily. Moreover, on the relation which uses conventionally [this] the level difference section 23 of the pair which prepared structure in the terminal 20 as caulking cost, Since the length size C of the terminal mounting hole 26 where a part for width-of-face Hirobe of this terminal 20 that considered these level difference section 23 is inserted must be set as a comparatively big value and it moreover becomes a caulking part near the both ends by the side of the terminal protrusion side 27 of the terminal mounting hole 26, in order to carry out caulking immobilization of the terminal 20 at the attachment member 25 -- long -- the **** space needed to be secured and it had become the factor from which this worsens a space factor and prevents the miniaturization of a product.

[0005] This invention was made in view of the technical problem of such conventional technology, and a gap of a terminal location or a contact location cannot take place easily at the time of a caulking, and it is reliable, and the purpose has a good space factor and is to offer the terminal caulking structure of switching equipment advantageous to a miniaturization.

[0006]

[Means for Solving the Problem] The purpose of this invention mentioned above is the non-periphery section of a tabular terminal drawn from a contact. While preparing a tongue-shaped piece which made a portion inserted into a terminal mounting hole of the shape of a slit established by attachment member made of synthetic resin project to reverse sense with the path of insertion A window hole which made a part where an end is inserted in said tongue-shaped piece in the non-periphery section of said terminal mounting hole ****, and made a skin of this attachment member expose the other end to said attachment member, Said window hole and engagement dead air space which counters are prepared through said terminal mounting hole, and it is attained by making said tongue-shaped piece in said terminal mounting hole press fit into said engagement dead air space to punch inserted in said window hole.

[0007]

[Function] By the solution means mentioned above inserting punch in the window hole exposed to the skin of attachment members, such as housing, and pushing in the tongue-shaped piece of the tabular terminal made to arrange in a terminal mounting hole Since it can say that this tongue-shaped piece is bound tight on the wall surface of engagement dead air space and this terminal can carry out location regulation of almost all the portions around said tongue-shaped piece in the internal surface of this mounting hole into said terminal mounting hole When this tongue-shaped piece is closed to said punch, the stress and the impact which join the perimeter of this tongue-shaped piece can be got by the internal surface of this mounting hole, and deformation [**** / un-] takes place to a terminal.

[0008] Moreover, although the width-of-face size has become large since the level difference section of a pair was conventionally prepared in the side edge section of a terminal as caulking cost Since what is necessary is just to prepare the tongue-shaped piece which is equivalent to caulking cost with the solution means mentioned above in the non-periphery section (inside) of a terminal It becomes unnecessary to secure a caulking part in the terminal protrusion side of an attachment member, and its space factor improves while this terminal can set up a width-of-face size small and the length size of a terminal mounting hole can therefore set it up short.

[0009]

[Example] Hereafter, one example of the terminal caulking structure by this invention is explained based on drawing 1 thru/or drawing 7 . The cross section showing the caulking production process which drawing 1 requires for this example here, explanatory drawing in which drawing 2 shows the terminal in front of a caulking production process in this example, Explanatory drawing in which drawing 3 shows the terminal immediately after a caulking production process in this example, explanatory drawing of operation showing the ON state of the seesaw switch which adopted the caulking structure which shows drawing 4 in drawing 1 , explanatory drawing of operation in which drawing 5 shows the OFF state of this seesaw switch, and drawing 6 -- the decomposition perspective diagram of this seesaw switch, and drawing 7 -- the torsion coiled spring of this seesaw switch, and a conductor -- it is the part plan showing a board.

[0010] Although this example is an example at the time of making it go away when attaching a terminal in housing of a seesaw switch, and applying this invention as structure, it explains the outline of this seesaw switch first.

[0011] As shown in drawing 4 -7, this seesaw switch The housing 1 fabricated by the closed-end cube type which has up opening 1a, and the terminals 2 and 4 attached in the pars basilaris ossis occipitalis of this housing 1, the conductor currently supported by one terminal (central terminal) 2 rockable -- with a board 5 The actuation object 8 currently supported by housing 1 rotatable through the pivot 9, rotation actuation of this actuation object 8 -- following -- a conductor -- the stationary contact 3 which is mainly constituted by the torsion coiled spring 7 which drives a board 5, and is attached to the terminal 4 -- receiving -- a rockable conductor -- the traveling contact 6 attached to the board 5 attaches and detaches, and the change of turning on and off is performed.

[0012] moreover, in the part which corresponds to drawing 1 with each terminal (2 or 4) in the bottom plate section of housing 1 so that it may be shown Slit-like terminal mounting hole 1b and window hole 1c which made the end **** in the center of abbreviation of terminal mounting hole 1b, and exposed the other end to the skin, Window hole 1c and 1d of engagement dead air

space which counters are prepared through terminal mounting hole 1b, and on the other hand, tongue-shaped piece 2b and 4a which made the path of insertion project to the reverse sense are provided at each terminals 2 and 4 in the center of abbreviation of the portion inserted in corresponding terminal mounting hole 1b, respectively so that clearly [drawing 2 and 6]. and in case a terminal 4 is attached in housing 1, for example So that the portion by the side of a tip may be first inserted in drawing 2 rather than bending section 4b of this terminal 4 at corresponding terminal mounting hole 1b so that it may be shown, the stationary contact 3 to housing 1 may be positioned and it may be shown subsequently to drawing 1 By a tip configuration's inserting the punch 10 of an abbreviation V typeface in window hole 1c exposed to the skin of housing 1, and pushing in tongue-shaped piece 4a of this terminal 4 made to arrange in the center of abbreviation in terminal mounting hole 1b This tongue-shaped piece 4a can be bound tight to the upper wall side of 1d of engagement dead air space, consequently a terminal 4 and a stationary contact 3 can certainly be fixed to housing 1 in drawing 1 and the condition which shows in 3. And in the state of drawing 2, since location regulation of almost all the portions around tongue-shaped piece 4a will be carried out at the internal surface of this mounting hole 1b, the terminal 4 inserted into terminal mounting hole 1b The stress and the impact which join the perimeter of this tongue-shaped piece 4a when this tongue-shaped piece 4a is closed to said punch 10 can be got by the internal surface of this mounting hole 1b, and, therefore, there is no fear of deformation [**** / un-] taking place in this terminal 4.

[0013] Moreover, what is necessary is to insert the portion by the side of a tip in corresponding terminal mounting hole 1b, to insert punch 10 subsequently to window hole 1c, and just to bind tongue-shaped piece 2b in this mounting hole 1b tight rather than bending section 2c of this terminal 2, first, similarly, to the upper wall side of 1d of engagement dead air space, in case the central terminal 2 is attached in housing 1. In addition, at this example, since tongue-shaped piece 2b or the upper wall side of 1d of engagement dead air space in which the point of 4a and contact are possible is leaned along the migration direction of this point when being pushed into punch 10 (refer to drawing 1), even if tongue-shaped piece 2b and 4a are stuffed into punch 10 and incline greatly, there is no fear of caulking reinforcement running short.

[0014] now, the conductor contained inside the housing 1 which attached terminals 2 and 4 in this way -- to a board 5 While having prepared notch 5a for inserting support projection 2a of the central terminal 2 in the lowest edge Dead-air-space 5b for inserting the torsion coiled spring 7 and Slots 5c and 5d, 5f of engagement pieces for escaping for preventing omission of the torsion coiled spring 7, and making stop piece 5e and drive projection 8b of the actuation object 8 engage and release etc., etc. are prepared. Twist to dead-air-space 5b of a board 5, insert and escape from winding section 7a of coiled spring 7, and omission of this winding section 7a are prevented in stop piece 5e. and this conductor -- and the condition of having inserted in Slots 5c and 5d arm 7b of the pair which projects from the both ends of winding section 7a, respectively -- the torsion coiled spring 7 -- a conductor, although attached to a board 5 If winding section 7a is pushed in from the upper part of dead-air-space 5b, it is possible to move this winding section 7a below, sagging arm 7b.

[0015] Moreover, although actuation side 8a rocks the axial center of a pivot 9 with the rotation actuation made into a center-of-rotation line, the actuation object 8 which is **** (ing) up opening 1a of housing 1 mostly the internal surface of this actuation object 8 -- a conductor -- the time of rotation of the actuation object 8 accompanying [have prepared drive projection 8b in which 5f of engagement pieces of a board 5 and engaging and releasing are possible, and] switching operation -- this drive projection 8b -- 5f of engagement pieces -- being engaged -- a conductor, carrying out the rotation drive of the board 5 the center-of-rotation line of the actuation object 8, and a conductor -- it has set up so that the plane containing the rocking supporting point A of a board 5 may be crossed. in addition, the time of rotating the actuation object 8 focusing on a pivot 9 so that clearly [drawing 4 and 5] -- drive projection 8b -- this -- the reverse sense -- a conductor -- the rotation drive of the board 5 is carried out. and this actuation object 8 and a conductor -- you made it interpose between boards 5 -- while twisting and making coiled spring 7 **** that winding section 7a in the base center section of the actuation object 8 -- arm 7b of a pair -- a conductor -- two

over the rocking supporting point A of a board 5 -- this -- a conductor -- it is made to **** to a board 5

[0016] Thus, the seesaw switch constituted arm 7b of a pair is bent -- making -- a conductor -- the torsion coiled spring 7 made to **** to a board 5 being incorporated in the condition of having made that winding section 7a ****(ing) in the base center section of the actuation object 8, and, if this winding section 7a is stuffed into the actuation object 8 from the upper part while changing the amount of bending of arm 7b -- winding section 7a -- a conductor -- it moves within dead-air-space 5b of a board 5. Therefore, if the end section of actuation side 8a is pushed in and the actuation object 8 is rotated actuation that the torsion coiled spring 7 rotates at a stretch after winding section 7a is pushed in into dead-air-space 5b -- carrying out -- actuation of this torsion coiled spring 7 -- following -- a conductor -- since the rotation drive of the board 5 is carried out -- a center [supporting point / A / rocking] -- this -- a conductor -- rotation of the actuation object 8 can be made to rock with a board 5

[0017] Consequently, if an operator pushes in the illustration left end section of actuation side 8a in the condition which shows in drawing 5 and this seesaw switch rotates the actuation object 8 counterclockwise If it twists when the inclination of the actuation object 8 is set to about 0, reaction force strong against an operator's finger is sensed since the height location of winding section 7a of coiled spring 7 becomes the lowest and the amount of bending of arm 7b becomes the largest then, and actuation side 8a is pushed in further while winding section 7a raises a height location -- a breath -- a clockwise rotation -- rotating -- it -- following -- a conductor, since a board 5 also rotates clockwise the central terminal 2 and stationary contact 3 which the traveling contact 6 contacted the stationary contact 3 as shown in drawing 4, and were made to estrange each other, and were arranged -- a conductor -- it will flow through a board 5 and will be in a switch ON state. immediately after [moreover, / sensing reaction force strong against an operator's finger by the same principle of operation as the above, when an operator pushes in the illustration right edge of actuation side 8a in the condition which shows in drawing 4 and the actuation object 8 was rotated clockwise] -- winding section 7a -- a breath -- a counterclockwise rotation -- rotating -- it -- following -- a conductor -- since a board 5 also rotates counterclockwise, a traveling contact 6 will estrange from a stationary contact 3, and will be in a switch OFF state.

[0018] Thus, the terminal caulking structure of the seesaw switch concerning this example Push in tongue-shaped piece 2b of the terminals 2 and 4 inserted into terminal mounting hole 1b of housing 1, and 4a to punch 10, and it binds tight on the wall surface of 1d of engagement dead air space. Since each tongue-shaped piece 2b, and the stress and the impact which join the perimeter of 4a can be got by the internal surface of terminal mounting hole 1b at the time of this caulking, a possibility of causing deformation [**** / each terminals 2 and 4 / at the time of a caulking / un-] is small, and caulking immobilization of the high-reliability which therefore cannot invite a gap of a terminal location or a contact location easily can be performed.

[0019] Moreover, although the width-of-face size has become large since the level difference section of a pair was conventionally prepared in the side edge section of a terminal as caulking cost Since the terminal caulking structure in this example should just prepare tongue-shaped piece 2b and 4a equivalent to caulking cost in the non-periphery section (inside) of terminals 2 and 4, respectively It becomes unnecessary to secure a caulking part in the base of the housing 1 used as a terminal protrusion side, and its space factor is good while each terminals 2 and 4 can set up a width-of-face size small and the length size D of terminal mounting hole 1b (refer to drawing 2) can therefore set them up short.

[0020] in addition, terminal caulking **** [in / at the above-mentioned example / a seesaw switch] -- although it is ***** (ing) just, it cannot be overemphasized that this invention can be applied to other housing and circuit boards of switching equipment also when carrying out caulking immobilization of the terminal.

[0021]

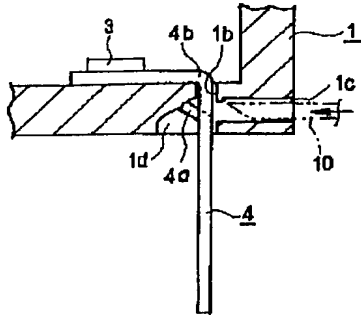
[Effect of the Invention] As explained above, the terminal caulking structure of the switching equipment by this invention Since the stress and the impact which join the perimeter of this tongue-shaped piece can be got by the internal surface of the terminal mounting hole of

attachment members, such as housing, in case the tongue-shaped piece prepared in the non-periphery section of a terminal is bound tight to punch The outstanding effect that caulking immobilization of the high-reliability which a terminal cannot cause deformation [**** / un-] easily and therefore cannot invite a gap of a terminal location or a contact location easily can be performed at the time of a caulking is done so. since it is not necessary to attach caulking cost to the side edge section of a terminal according to this invention, in order [moreover,] to carry out caulking immobilization of the terminal at an attachment member -- long -- it becomes unnecessary to secure a **** space, a space factor improves, and the outstanding effect that the miniaturization of a product can be promoted is done so.

[Translation done.]

Drawing selection drawing 1

【図1】



- 1 : ハウジング (取付部材)
- 1b : 端子取付孔
- 1c : 窓穴
- 1d : 係合箇所
- 3 : 固定端点
- 4 : 端子
- 4a : 舌方
- 10 : ボンチ

[Translation done.]